influence of waste liquid of the developing solution upon environment.

The plate-making method of a lithographic printing plate of the present invention will be described in greater detail below.

First, a novel developing solution for use in the plate-making method of a lithographic printing plate of the present invention, which is one feature of the plate-making method of the present invention, is described below.

The developing solution for use in the present invention is an aqueous alkali solution containing at least (1) an inorganic alkali agent and (2) a nonionic surface active agent having a polyoxyalkylene ether group.

Examples of the inorganic alkali agent (1) include sodium tertiary phosphate, potassium tertiary phosphate, ammonium tertiary phosphate, sodium carbonate, potassium carbonate, ammonium carbonate, sodium hydrogen carbonate, potassium hydrogen carbonate, ammonium hydrogen carbonate, sodium borate, potassium borate, ammonium borate, sodium hydroxide, potassium hydroxide, ammonium hydroxide and lithium hydroxide.

For the purpose of minute control of the alkali concentration or assisting dissolution of the photosensitive layer, an organic alkali agent may be supplementally used together with the inorganic alkali

agent. Examples of the organic alkali agent include monomethylamine, dimethylamine, trimethylamine, monoethylamine, diethylamine, triethylamine, monoisopropylamine, diisopropylamine, triisopropylamine, n-butylamine, monoethanolamine, diethanolamine, triethanolamine, monoisopropanolamine, diisopropanolamine, ethyleneimine, ethylenediamine, pyridine and tetramethylammonium hydroxide.

The alkali agents may be used individually or as a mixture of two or more thereof.

The alkali agent is employed in an amount so that a pH of the developing solution is in a range of from 9 to 13.5 and an electric conductivity thereof is in a range of from 2 to 40 mS/cm. A preferred range of the pH is from 10.0 to 12.5. A preferred range of the electric conductivity is from 3 to 30 mS/cm and more preferably from 5 to 20 mS/cm.

When the pH of developing solution is lower than the above-described range, images are hardly formed. On the other hand, when the pH of developing solution is higher than the above-described range, the development proceeds excessively and damage due to the development increases in the exposed area.

When the dielectric constant of developing solution is lower than the above-described range, it ordinarily

becomes difficult to dissolve the photosensitive composition on a surface of aluminum plate support, thereby accompanying with printing stain. On the other hand, when the dielectric constant of developing solution is higher than the above-described range, a dissolving speed of the photosensitive layer conspicuously decreases, whereby residual film occurs in the unexposed area.

It is also essential for the developing solution according to the present invention to contain the nonionic surface active agent having a polyoxyalkylene ether group (2). By the addition of nonionic surface active agent, dissolution of the photosensitive layer in the unexposed area is accelerated and penetration of the developing solution can be restrained in the exposed area.

As the nonionic surface active agent having a polyoxyalkylene ether group, a compound represented by formula (I) shown below is preferably used.

$$R^1\text{-}O\text{-}(R^2\text{-}O)_n\,H \qquad (I)$$

In formula (I), R^1 represents an alkyl group having from 3 to 15 carbon atoms which may be substituted, an aromatic hydrocarbon group having from 6 to 15 carbon atoms which may be substituted or an aromatic heterocyclic group having from 4 to 15 carbon atoms which may be substituted, wherein the substituent includes an alkyl group having from 1 to 20 carbon atoms, a halogen atom